

Appendix K
Methodology for 303(d) Listing of Beaches for
Bacteria

Methodology for Section 303(d) Listing of Beaches for Bacteria

This document summarizes the listing methodology used to determine whether a beach segment exhibiting elevated levels of bacterial indicators was sufficiently contaminated to warrant inclusion on the Clean Water Act Section 303(d) List of impaired waters. The method described below was used by each of the three southern California Regional Water Quality Control Boards during the 2002 update of the Section 303(d) list. In essence, if year-round water quality data collected from a beach segment indicated that Basin Plan water quality objectives for bacteria were exceeded 10% or more of the time, the beach segment was listed.

Data collected from 1999 to 2002 by the San Diego County Department of Environmental Health and the Orange County Health Care Agency was reviewed for the 2002 assessment of beaches in the San Diego Region. For each sampling location and each day of sampling, measurements of all three bacterial indicators -- total coliform, fecal coliform, and enterococcus -- were compared to their respective Basin Plan water quality objectives and the number of water quality objective exceedance days was tabulated. If any one of the indicators exceeded the objective, this was considered a "hit". If two or all three indicators exceeded the objective, this was also considered a hit, but was only counted once. The identified exceedance days were then compared to Beach Closure and Advisory Reports generated by the respective agencies. If an exceedance was the direct result of a known sewage spill or forced lagoon opening, the exceedance was not included in the tabulation for Section 303(d) listing purposes. In addition, only raw data was considered, i.e., rain advisories and precautionary beach postings, without supporting water quality data, were not considered for listing purposes.

For each beach segment, the number of exceedance days was compared to the number of exceedance days expected to occur at a beach downstream of a watershed that is minimally impacted by human activities. In the absence of an identified "reference beach" in the San Diego Region, the two listing thresholds recommended by the statewide Beach Water Quality Workgroup were used¹. If year-round data was available, the threshold for listing was 10%. This means that if 10% of the total samples for a specific beach segment exceeded the numeric objectives, the segment was listed. For beach segments where data was available for the dry season only (April 1-October 31), the threshold was lowered to 4%. The 10% threshold was adopted from USEPA's Section 305(b) Water Quality Assessment Guidance², in which it is loosely stated that exceedances greater than 10% of numeric objectives, for all constituents, can be interpreted as not supporting the beneficial use(s) of the waterbody. The 4% threshold originated from the Bight '98 Study³, in which it was found that roughly 4% of bacterial samples collected during the dry season in a relatively minimally impacted watershed exceeded numeric water quality objectives for bacteria.

Using the above criteria, four beach segments in the San Diego Region were added to the Section 303(d) List in 2002. These segments were Shelter Island Shoreline Park (San Diego Bay), Tidelands Park (San Diego Bay), Baby Beach (Dana Point Harbor), and South Capistrano Beach at Beach Road.

¹ Draft 303(d) Listing Criteria, November 12, 2002. Monitoring & Reporting Subcommittee Beach Water Quality Workgroup.

² USEPA. 1997. "Guidelines for Preparation of the Comprehensive State Water Quality Assessments (305(b) Reports) and Electronic Updates: Supplement." EPA-841-B-97-002A. Office of Water, Washington, D.C.

³ Southern California Coastal Water Research Project (SCCWRP). 1998. Southern California Bight '98 Regional Monitoring Program.